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BME-004

B.Tech. MECHANICAL ENGINEERING (COMPUTER INTEGRATED MANUFACTURING)

00390

Term-End Examination

June, 2015

BME-004 : CNC TECHNOLOGY AND PROGRAMMING

Time : 3 hours *Maximum Marks : 70*

Note : *Answer any* ***seven*** *questions. All questions carry equal marks.*

1. (a) Briefly explain the basis of designating the co-ordinates axes in CNC machine tools. *5*

(b) Give a brief description of CNC turning centres. Explain the reasons why turn-mill centre is preferable to a 2-axis CNC turning centre. *5*

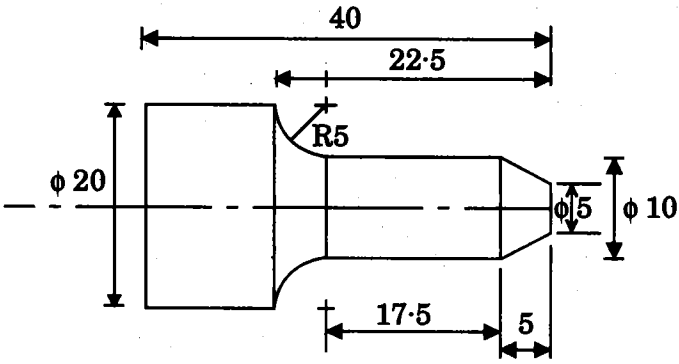
2. (a) Describe five applications where the touch trigger probes can be used on a shop floor. *5*

(b) Explain the importance of the tool nose radius compensation in turning centres. *5*

3. (a) Explain the differences between absolute and incremental programming system in CNC application. What are the various applications of absolute and incremental programming ? *5*

(b) What are the various formats in which spindle speed can be specified in turning centres ? Explain their applications. *5*

4. For the components shown below make a part program for machining on the CNC turning centre. *10*



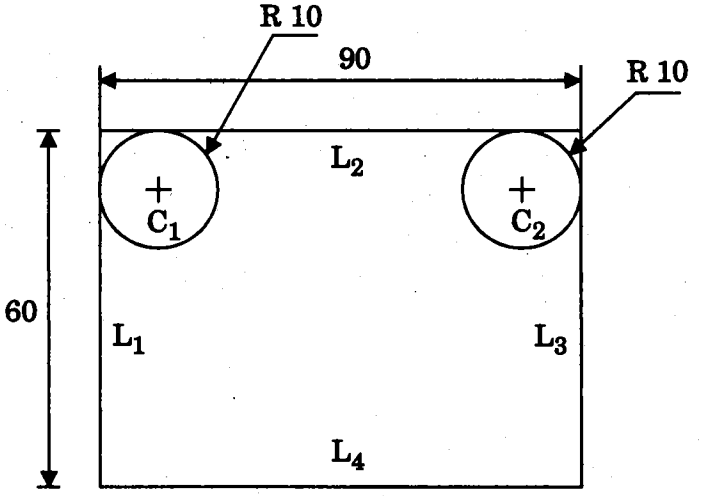
All dimensions in mm

5. (a) Write a brief note on post processors in computer aided part programming systems. *5*

(b) Explain cell control functions as an advancement of DNC with a block diagram. *5*

6. What are the types of communication networks used in manufacturing applications ? Which is the most widely used ? Explain the working of any one type of network. *10*

7. Write the geometry statements for the following part as identified in figure : *10*



All dimensions in mm

8. (a) Explain briefly about the major components of an AS/RS. Mention its advantages also. *5*

(b) What are the different types of system layouts used in FMS ? Explain their applications. *5*

9. What is meant by flexibility in connection with FMS ? Explain at least three types of flexibilities that can be considered while designing FMS. What do you mean by FMS control system ? What are its functions ? *10*